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JOHNSTON, Andrew

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Which Sectors are Driving Regional Economic Development?
Comparing the Effects of Changes in Employment in Knowledge-
Based and Consumption-Based Sectors on Regional Economic
Performance

Andrew Johnston

Sheffield Business School,
Sheffield Hallam University,
Sheffield,
S1 1WB

Email: a.johnston@shu.ac.uk

Tel: 0114 2255886

A. Which Sectors are Driving Regional Economic Development? Comparing the Effects of Changes in Employment in Knowledge-Based and Consumption-Based Sectors on Regional Economic Performance

B. Abstract

Despite increasing as a proportion of economic activity, the role of consumption in regional economic development does not feature highly in the policies or debates. Instead, the focus is on the promotion of innovative activity and knowledge assets. Using NUTS 3 level data this paper examines the changing level of employment in consumption-based and knowledge-based sectors in order to assess the contribution of each to regional economic development.

B. Introduction

The UK has witnessed a substantial decline in employment within manufacturing sectors over the past 3 decades (Hine and Wright, 1998). As with other advanced economies the UK has seen a realignment of the economy towards the service sector. Indeed, these changes have led to some scholars describing the modern economy as post-industrial (Esping-Andersen, 1999), borne out by the increasing importance of consumer expenditure to the UK economy. In 2006 the value of consumer spending in the UK was over £750 billion, contributing significantly to GDP and growing at an average rate of around 1 per cent per quarter (Office for National Statistics, 2007a). In contrast, growth in the UK manufacturing sector is much slower, with recent growth of 0.4 per cent per year (Office for National Statistics, 2007b). In fact, the UK manufacturing sector can be described as being stagnant; the index of production for 2006 was 99.0 (2003 = 100), although output did rise slightly during the first half of

2007. These differing performances are also reflected in data on employment change in the manufacturing and service sectors. Employment in the service sector increased by over 270,000 in the year to September 2007, while employment in the manufacturing sector decreased by 29,000 (Office for National Statistics, 2008).

Consumer expenditure is a term that covers a diverse range of factors. For example, the £750 billion figure includes over £87 billion spent on eating in restaurants, up from around £50 billion in 1995 and outstripping expenditure on food consumed at home, over £47 billion on clothing and footwear, £97 billion on recreation and cultural activities, and over £13 billion on hotel stays (Office for National Statistics, 2007a). Despite the increasing growth of consumer spending in the UK, its significance in terms of regional economic development has not been closely examined. Indeed, regional policy appears to be more concerned with promoting knowledge-based sectors, as policymakers focus on the 'high road of knowledge based competition' (Malecki, 2004) through promoting niche manufacturing sectors (see DTI, 1998; DTI, 2003). Indeed, this focus is driven by a wealth of academic work that conceptualises regional competitiveness as being based on the endowment of knowledge resources and the region's ability to exploit them (see Huggins and Izushi, 2007 *inter alia*).

Also related to this focus on knowledge-based sectors is the focus on the 'creative class,' i.e. highly qualified, highly skilled or talented individuals (Florida, 2002). Florida's thesis suggests that it is the presence of these individuals which is the key to economic development as they possess the ideas and know-how to drive the modern economy forward. As a result it is viewed as an increasingly important objective to

attract ‘creative individuals’ to a city or region (Peck, 2005). While this idea is not without its critics (Peck, 2005 provides an interesting critical overview) it does lend itself to empirical questioning; for example are creative individuals more likely to be located in areas where they can consume all the products and services they desire or are they more likely to reside in areas with a strong knowledge-based sector, which provide employment opportunities?

Using regional data at the NUTS 3 level¹, this paper examines the impact of changing employment levels in these two broad sectors, consumption-based sectors, (for example, retail, leisure and entertainment) and knowledge-based sectors, (for example, computer software, biotechnology and aerospace) on regional economic development in the UK. The paper tackles a number of interesting questions. Firstly, in light of increasing consumer expenditure how has employment in consumption-based sectors changed during the period 1995-2005? How does this change compare with the manufacturing and knowledge-based sectors? What is the effect of the growth of employment in consumption and knowledge-based sectors on total employment and GDP? Is there a higher proportion of the ‘creative class’ in regions where employment in knowledge-based sectors outgrew employment in consumption based sectors? How does the relative economic performance of regions where consumption employment grew faster than knowledge-based employment compare to regions where the opposite was true? Thus, the paper gives a clear indication of which sectors have the largest impact on growth and employment at the regional level and assesses whether the present focus on knowledge-based manufacturing is sensible or

¹ Nomenclatures of Territorial Units for Statistics, or NUTS regions, are standard administrative areas of the European Union. In terms of a hierarchy of NUTS regions, the larger the number the smaller the region, thus the UK is comprised of 12 NUTS 1 regions, 37 NUTS 2 regions and 133 NUTS 3 regions.

whether policy should promote consumption based sectors in order to benefit from the trend of increasing consumer expenditure.

B. Definitions and Data Sources

In order to address the questions outlined above it was first necessary to determine which sectors constitute consumption sectors and knowledge-based sectors. In terms of consumption-based sectors it was necessary to develop a definition, since no previous definition existed. Therefore, consumption-based sectors are defined here as being associated with the purchase of a good or service by a consumer, i.e. retail sectors, restaurants and pubs and leisure based industries such as cinemas, theatres and sports venues. Utilising the UK Standard Industrial Classification 1992 (Office For National Statistics, 1997) these sectors were then identified. In contrast, a wealth of work has been undertaken on knowledge-based sectors, thus a number of definitions exist. For the purpose of this paper knowledge-based sectors are identical to the sectors identified by Hepworth, *et al.* (2004) in their examination of the knowledge economy in rural England. The sectors that comprise each broad classification are outlined in Tables 1 and 2.

[Tables 1 & 2 around here]

Having defined the two sectors it is also necessary to outline the geographic unit of analysis as the term ‘region’ has a number of interpretations. For the purpose of this paper the region is taken to be a NUTS 3 region. Crucially, these regions are the smallest geographic unit for which GDP data is available, which despite being criticised for its lack of reliability (Allsop, 2003), is useful for comparing performance

across regions. Also, data on employment levels in consumption-based, manufacturing and knowledge-based sectors as well as data on the various facets of regional economic performance, i.e. occupations, qualifications, number of firms and population, are widely available for these regions. Finally, a proxy for the 'creative' class was developed, including all those individuals with a degree level qualification or those in top managerial occupations (SOC classes 1-3). Data were then obtained for each region for the period 1995-2005 from various publicly available data sources produced by the Office for National Statistics.

B. Results: Employment Growth in the Two Sectors

A significant change in the structure of employment in the UK occurred between 1995 and 2005. Specifically, employment in manufacturing sectors suffered a significant contraction decreasing from an average of 13.5 per cent of total regional employment in 1995 to 9.3 per cent in 2005. In contrast, over the same period employment in consumption-based sectors increased from an average of 17.1 per cent of total regional employment in 1995 to 21.4 per cent in 2005, while the proportion employed in knowledge-based sectors increased from an average of 18.6 per cent in 1995 to 23.2 per cent in 2005.

The results show that, on average, the number employed in manufacturing sectors decreased by around 28 per cent per region between 1995 and 2005 (Table 3). Despite the fact that Table 3 shows the maximum level of growth in employment in manufacturing sectors to be over 30 per cent, the reality is that only 3 regions posted

positive growth in these sectors during the 10 year period; North and North East Somerset, Inverness and surrounding area, and the Shetland Islands.

In comparison, employment in both consumption-based and knowledge-based sectors grew significantly, increasing on average by around 25 per cent. However, not all regions experienced such growth in employment within these sectors. In terms of employment in consumption-based sectors 11 out of the 133 regions experienced negative growth including, the English seaside regions of Blackpool and Torbay, the Scottish Islands of Lochaber and Skye, the Western Isles and Orkney and the Scottish mainland regions of Aberdeen and Aberdeenshire, Dumfries and Galloway, Inverclyde and Renfrewshire, Caithness and Inverness and surrounding area. A similar pattern is found with respect to the employment in knowledge-based sectors where, again, 11 out of the 133 regions experienced negative employment growth. Of these 11, four are regions that also experienced negative growth in consumption-based employment, Blackpool, Dumfries and Galloway, Inverclyde and Orkney. The other regions to have experienced a negative growth in knowledge-based employment are Sefton, Gwynedd, Conwy and Denbighshire, Gwent Valleys, Falkirk, South Ayrshire and East and North Ayrshire. Consequently, it appears that more peripheral UK regions are the ones that buck the trend of growing employment in both consumption-based and knowledge-based sectors.

[Table 3 around here]

The average level of regional GDP per capita increased from £10,381 in 1995 to £15,789 in 2005, an average increase of over 55 per cent. This decade long period of

growth shows that that the changes observed in relative levels of employment during this period represent the process of evolution during a period of growth, as opposed to structural changes enforced through recession. However, the increasing standard deviation of the mean level of GDP per capita between 1995 and 2005 highlights a growing dispersion of the distribution and, hence rising inequalities between regions. While a decade long period of growth in GDP per capita may suggest an increasing level of prosperity for the UK in general; this increasing level of prosperity appears to be far from uniform.

In terms of the 'creative class' the data shows that on average 39 per cent of the regional population were employed in occupations in SOC classes 1-3 and on average 25 per cent of the regional population had a degree level qualification. Thus, the creative class accounts for a sizable portion of the average regional population, although there is significant variation in the size of the creative class across the regions. For example, over two-thirds of the population of the Inner London – West region employed in higher level occupations compared with around 27 per cent in Blackpool. This pattern is repeated for individuals with degree level qualifications, with Hull the worst performing region with 12.9 per cent of the population educated to degree level and the Inner London – West region the best performing, where over 45 per cent of the population possess a degree.

One of the key questions this paper aims to answer is how the change in employment in the two sectors related to change in total employment? Figure 1 highlights a positive relationship between the growth of employment in consumption-based sectors and the growth of total employment. However, the data also shows that there

are a number of regions where employment growth was negative despite the increased levels of employment in consumption-based sectors. A similar pattern is observed with respect to employment in knowledge-based sectors (Figure 2). A positive relationship exists between the growth of employment in knowledge-based sectors and the growth of total employment, yet around half the regions exhibit a positive growth of employment in these sectors and a negative rate of growth overall. Thus, it would appear that it is a combination of the two sectors that contributes to the growth of overall employment; the growth of one is not necessarily the key to growth overall employment. This suggests that a narrow policy focus, i.e. focusing on just one of these sectors, will not deliver employment growth overall.

[Figures 1 & 2 about here].

Following on from examining the relationship between changes in employment in the two sectors and changes in total employment, Figures 3 and 4 examine the relationship between employment growth in the two sectors and the growth of GDP per capita. Firstly, there appears to be very little correlation between the increasing employment in consumption-based sectors and GDP (Figure 3). In contrast, Figure 4 demonstrates a positive correlation between the change in GDP per capita and the employment growth in knowledge-based sectors.

[Figures 3 & 4 about here]

There is evidence of a stronger relationship between the growth of both total employment and GDP per capita with the growth of knowledge-based employment

than with growth in consumption-based employment. However, it must be noted that the growth of either sector does not guarantee growth. There is also evidence of total employment falling in some regions despite employment growth in both these sectors as well as evidence of GDP per capita increasing in some regions despite negative growth in employment in these sectors.

B. Comparing ‘Consumption Growth’ and ‘Knowledge Growth’ Regions

In order to assess the effects of employment growth in the different sectors on regional economic development the regions were divided into two groups, ‘consumption growth’ regions, where growth in employment in consumption sectors was higher than growth in knowledge-based sectors, and ‘knowledge growth’ regions, where the growth in employment in knowledge-based sectors was higher than growth in consumption sectors. The two groups of regions are presented in Table 4. On examination, there appears to be a mix of regions in both categories; for example cities, rural regions and northern or southern regions do not appear to be clustered in one particular group. Interestingly, for cities that are comprised of multiple regions, some regions are classified as 'consumption growth' regions while others are classified as 'knowledge growth' regions. For example Greater Manchester South is classified as a 'knowledge growth' region where as Greater Manchester North is classified as a 'consumption growth' region. Other examples of this include the Inner London regions ('knowledge growth' regions) and the Outer London regions ('consumption growth' regions).

[Table 4 about here]

The relative performance of the two groups was assessed using Mann-Whitney tests of difference to examine differences in the mean of various indicators, i.e. GDP per capita, the change in GDP per capita, employment growth and the presence of the 'creative class' between the two groups, with the results presented in Table 5. Some significant differences were uncovered between the two types of region. Regions with a higher rate of growth in knowledge-based employment exhibit a higher and statistically significant level of employment growth, with total employment increasing by an average of 1.9 per cent between 1995 and 2005, compared with an average growth rate of -1.52 per cent for regions with a higher rate of growth in consumption-based employment.

The data also suggests that, on average, 'knowledge growth' regions have a higher, and statistically significant, level of GDP per capita. In these regions average GDP per capita in 2005 was over £17,000 per annum, compared with around £14,500 per annum for 'consumption growth' regions. As well as having a higher level of GDP per capita 'knowledge growth' regions also exhibited a higher and statistically significant rate of GDP growth over the period 1995 to 2004, with GDP per capita growing on average by 57 per cent in 'knowledge growth' regions compared with 46 per cent in 'consumption growth' regions. Again, the data appears to suggest that regions with a higher rate of growth in consumption-based employment do not grow as quickly and do not generate the level of GDP observed in 'knowledge growth' regions.

In terms of the 'creative class' the results were mixed. Firstly, with respect to higher level occupations there is no statistically significant difference in the proportion found

in the two groups of regions. Conversely, there is a statistically significant difference in the average proportion of the population with a degree level qualification as 'knowledge growth' regions have a slightly higher proportion of residents with a degree, just under 27 per cent compared with around 24 per cent in 'consumption growth' regions. This suggests that the most highly qualified workers are more likely to reside in regions with higher levels of growth in employment in knowledge-based sectors.

[Table 5 about here]

Jobs within consumption-based sectors are more likely to rely on part-time, casual or seasonal employees as the data suggests that the level of part-time employment within a region is more highly correlated with the level of employment within consumption-based sectors (a correlation coefficient of 0.848 compared with 0.599 for knowledge-based sectors). Furthermore, the data suggests that overall economic activity rates are not significantly different between consumption-growth and knowledge-growth regions (See Table 6). These findings suggesting that the observed differences in GDP are the result of the differing levels of full time and part-time employment and the associated difference in earnings.

Significant differences are observed with respect to female economic activity rates between the two types of region. Within 'consumption growth' regions the mean economic activity rate of females is significantly lower (68 percent in 'knowledge growth' regions compared with 54 per cent in 'consumption growth' regions), while the mean economic inactivity rate is significantly higher (66 per cent compared with 52 per cent). This result is perhaps surprising as consumption-based sectors such as

retail would appear to offer more in the way of part-time and off peak employment to fit in with other commitments. However, it appears that where there is a higher rate of growth in these types of jobs the participation rate of females is lower.

[Table 6 about here]

Finally, with respect to the economic activity rates of youths (i.e. individuals aged 16-24) the only significant difference is with females, where the economic activity rates in consumption growth regions are significantly lower (54 per cent compared with 68 per cent). Again, the fact that consumption-based sectors such as retail which offer more in the way of part-time and off peak employment to fit in educational commitments may have been expected to contribute to a higher level of economic activity among youths. Instead, it appears that a higher rate of economically active young females is observed where the growth of knowledge-based employment is higher.

B. Concluding Remarks and Policy Implications

Employment in consumption-based and knowledge-based sectors grew on average by 25 per cent per region between 1995 and 2005. This employment growth is positively correlated with the growth of total employment within a region, although the growth of knowledge-based employment appears to be more highly correlated. In terms of GDP per capita a different pattern is observed; there appears to be little correlation between the growth of employment in consumption-based sectors and the growth of GDP per capita, while the growth of employment in knowledge-based sectors is positively correlated with the growth of GDP per capita. Thus, there is a suggestion

that knowledge-based employment is more valuable than consumption-based employment.

This last point appears to be confirmed by examining differences between regions where the growth of knowledge-based employment outstripped the growth of consumption-based employment. These regions were found to have a significantly higher level of employment growth, GDP, GDP growth and a higher proportion of individuals with a degree level qualification. With respect to the accessibility of jobs, there is evidence that within regions where employment in knowledge-based sectors has a higher rate of growth there is a significantly higher level of female economic activity, lower level of economic inactivity and a higher female youth economic activity rate.

There results suggest a number of implications for regional development policy. The first is that the focus on knowledge-based sectors appears to be vindicated as the expansion of these sectors appears to have a greater effect on regional economic performance. However, this is not to say that consumption-based sectors should be ignored. As noted at the beginning of this paper, consumer expenditure has seen a phenomenal increase over the ten year period 1995 to 2005 and the benefits associated with it are increased employment in most regions. Thus, there are positive outcomes from the growth of these sectors, not least in terms of increasing employment and conversely decreasing unemployment. With the widely predicted slowdown in economic activity however, it appears that consumption-based sectors are more likely to be harder hit as they rely solely on domestic consumers or tourists for growth. In contrast, the output of knowledge-based sectors can be traded in non-

domestic markets, thus the larger the customer base then the more likely a sector will be in generating demand for its output.

Finally, one caveat must be outlined; the growth of employment in either of these sectors does not necessarily promote the overall growth of employment. These conclusions are not intended to suggest that the expansion of either of these sectors is a panacea for regional economic development.

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Table 1: Consumption-Based Sectors

SIC Code	Description of Sector
50.1	Sale of motor vehicles
50.3	Sale of motor vehicle parts and accessories
50.4	Sale, maintenance and repair of motorcycles and related parts and accessories
50.5	Retail sale of automotive fuel
52.1	Retail sale in non-specialised stores
52.2	Retail sale of food, beverages and tobacco in specialised stores
52.3	Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles
52.4	Other retail sale of new goods in specialised stores
52.5	Retail sale of second-hand goods in stores
52.6	Retail sale not in stores
52.7	Repair of personal and household goods
55.1	Hotels
55.2	Camping sites and other provision of short-stay accommodation
55.3	Restaurants
55.4	Bars
55.5	Canteens and catering
63.3	Activities of travel agencies and tour operators; tourist assistance activities not elsewhere classified
92.13	Motion picture projection
92.3	Other entertainment activities
92.52	Museum activities and preservation of historical sites and buildings
92.52	Botanical and zoological gardens and nature reserve facilities
92.61	Operation of sports arenas and stadiums
92.71	Gambling and betting activities
93.02	Hairdressing and other beauty treatment
93.04	Physical well-being activities

Table 2: Knowledge-Based Sectors

SIC Code	Description of Sector
11	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction including surveying
22.11- 22.22	Printing, publishing and recorded media
23	Manufacture of coke, refined petroleum and nuclear fuel
24	Manufacture of chemicals and chemical products
30	Manufacture of office machinery and computers
32	Manufacture of radio, television and communication equipment and apparatus
33	Manufacture of medical, precision and optical instruments, watches and clocks
35.3	Aerospace
40	Electricity, gas, steam and hot water supply
41	Collection, purification and distribution of water
62	Air transport services
64.12	Courier activities other than national post activities
64.2	Telecommunications
65	Financial intermediation, except insurance and pension funding
67	Activities auxiliary to financial intermediation
72	Computer and related activities
73	Research and development
74	Other business activities
92	Recreational and cultural services

Table 3: Descriptive statistics

Variable	Mean	Minimum	Maximum	S.D
Percentage change in manufacturing employment (1995-2005)	-27.96	-58.28	30.61	14.61
Percentage change in employment in consumption sectors (1995-2005)	25.43	-22.78	84.11	17.16
Percentage change in employment in knowledge sectors (1995-2005)	24.43	-25.82	88.22	21.15
GDP per capita (1995)*	£10,381	£5891	£46,586	3860.95
GDP per capita (2005)*	£15,789	£9013	£69,675	6332.12
Percentage change in GDP per capita (1995-2004)	55.51	18.54	110.09	19.10
Percentage employed in SOC classes 1-3 (2005)	39.09	27.75	66.44	6.27
Percentage of population with degree level (NVQ level 4) qualification (2005)	25.42	12.90	45.90	5.84

*at 2005 prices

Figure 1: Relationship Between the Change in Employment in Consumption-based Sectors and Total Employment Change

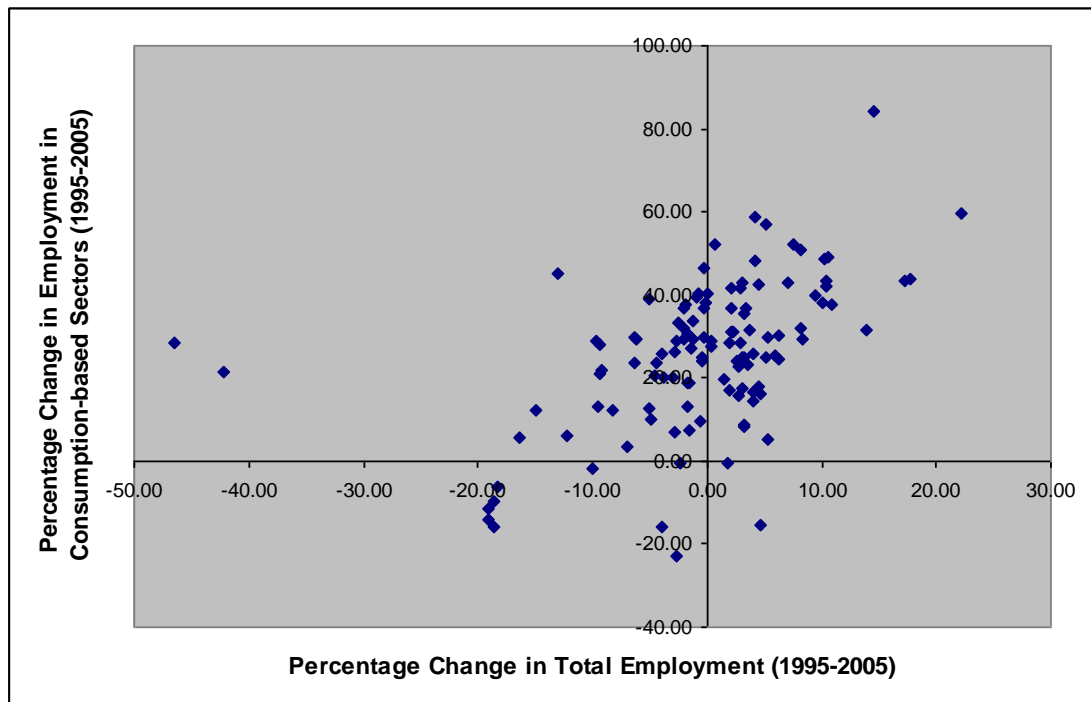
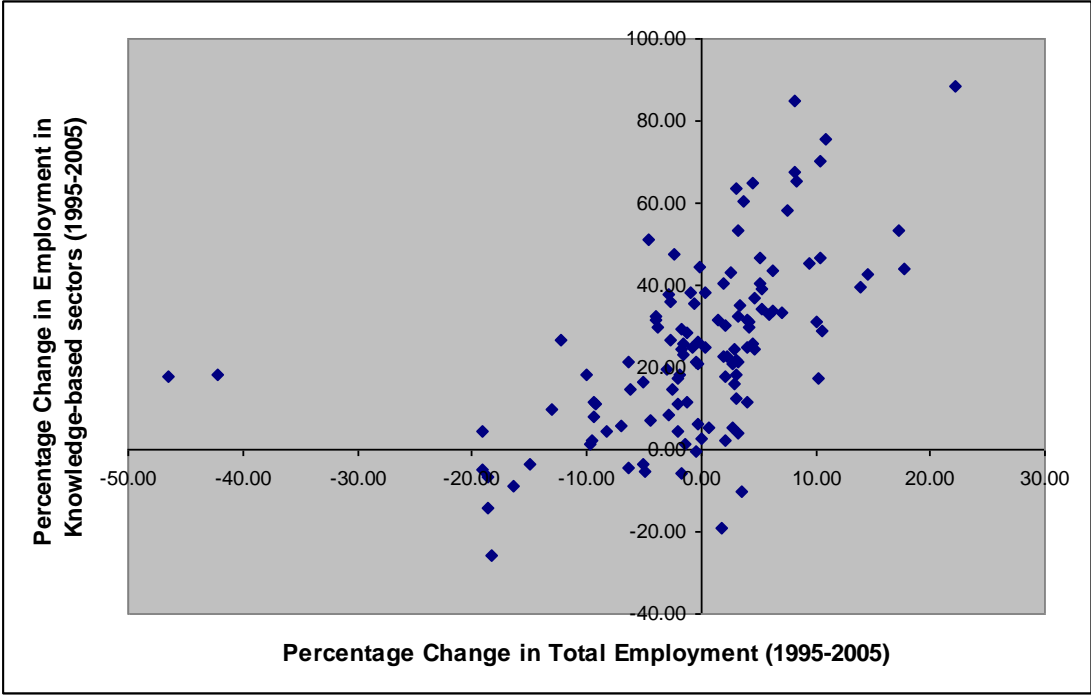


Figure 2: Relationship Between the Change in Employment in Knowledge-based Sectors and Total Employment Change



**Figure 3: The Relationship Between the Change in Employment in
Consumption-based Sectors and GDP per capita**

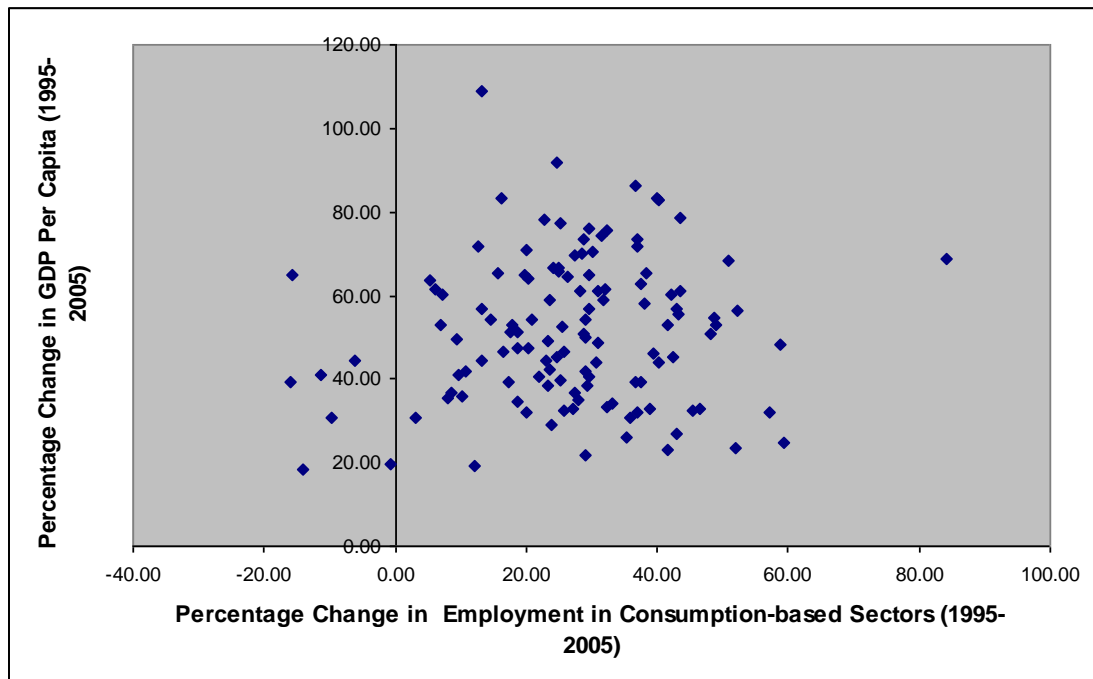


Figure 4: The Relationship Between the Change in Employment in Knowledge-based Sectors and GDP per capita

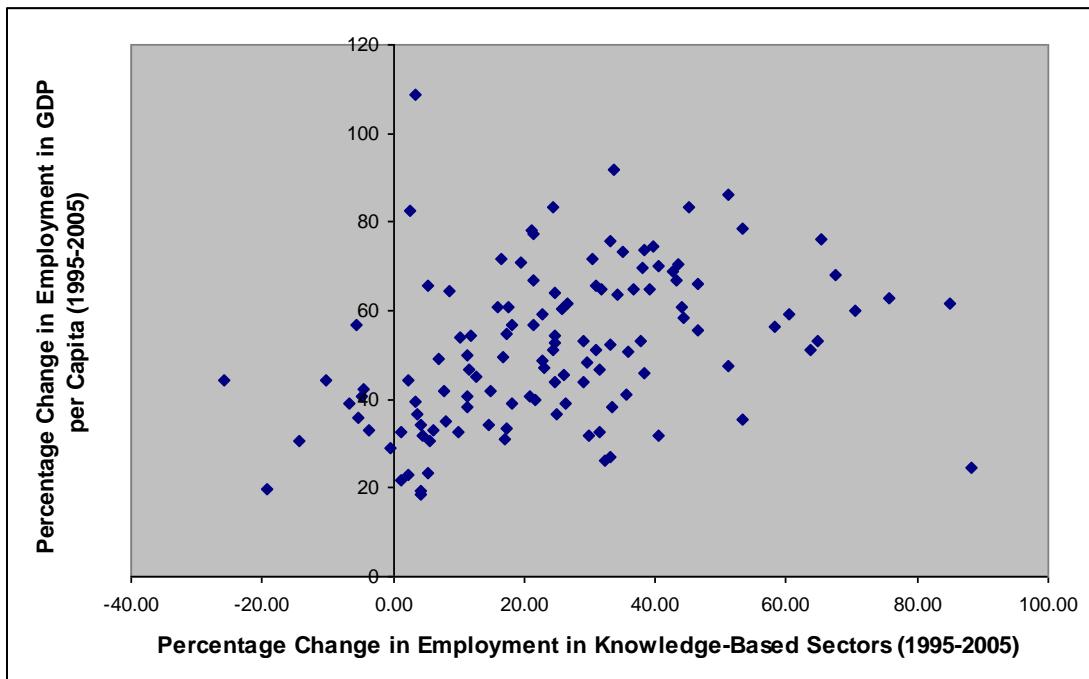


Table 4: ‘Consumption Growth’ and ‘Knowledge Growth’ Regions

Consumption Growth Regions	Knowledge Growth Regions
Angus and Dundee City	Aberdeen City, Aberdeenshire and North East Moray
Bedfordshire	Barnsley, Doncaster and Rotherham
Birmingham	Berkshire
Bournemouth and Poole	Blackburn with Darwen
Bradford	Blackpool
Bridgend and Neath Port Talbot	Brighton and Hove
Bristol	Buckinghamshire
Cambridgeshire	Caithness and Sutherland and Ross and Cromarty
Cardiff and Vale of Glamorgan	Calderdale, Kirklees and Wakefield
Central Valleys	Clackmannanshire and Fife
Cheshire	Darlington
Conwy and Denbighshire	Derby
Cornwall and Isles of Scilly	Devon
Coventry	East Derbyshire
Dorset	Edinburgh
Dudley and Sandwell	Eilean Siar (Western Isles)
Dumfries and Galloway	Glasgow
Durham	Greater Manchester South
East and West Dunbartonshire, Helensburgh and Lomond	Halton and Warrington
East Ayrshire and North Ayrshire Mainland	Hampshire
East Cumbria	Herefordshire
East Lothian and Midlothian	Inner London - East
East Merseyside	Inner London - West
East Riding of Yorkshire	Inverclyde, East Renfrewshire and Renfrewshire
East Sussex	Inverness and Nairn and Moray, Badenoch and Strathspey
Essex	Isle of Wight
Falkirk	Lancashire
Flintshire and Wrexham	Leeds
Gloucestershire	Leicester
Greater Manchester North	Lochaber, Skye and Lochalsh and Argyll and the Islands
Gwent Valleys	Luton
Gwynedd	Medway
Hartlepool and Stockton-on-Tees	Milton Keynes
Hertfordshire	Monmouthshire and Newport
Isle of Anglesey	North and North East Somerset, South Gloucestershire
Kent	North Lanarkshire
Kingston upon Hull	North Yorkshire
Leicestershire and Rutland	Northamptonshire
Lincolnshire	Outer London - West and North West
Liverpool	Perth and Kinross and Stirling
Norfolk	Peterborough
North and North East Lincolnshire	Sheffield
North Nottinghamshire	South and West Derbyshire
Northumberland	South Lanarkshire
Nottingham	South Nottinghamshire
Orkney Islands	Southend-on-Sea
Outer London - East and North East	Sunderland
Outer London - South	Surrey
Oxfordshire	Swansea
Plymouth	Torbay
Portsmouth	Tyneside
Powys	Walsall and Wolverhampton
Scottish Borders	Warwickshire
Sefton	West Lothian
Shetland Islands	Worcestershire
Shropshire	York
Solihull	
Somerset	
South Ayrshire	
South Teesside	
South West Wales	
Southampton	
Staffordshire	
Stoke-on-Trent	
Suffolk	
Swindon	
Telford and Wrekin	
Thurrock	
West Cumbria	
West Sussex	
Wiltshire	

Table 5 – Comparing ‘Consumption growth’ and ‘Knowledge growth’ regions

Variable	Consumption growth regions	Knowledge growth regions	Mann-Whitney independent samples test
Mean level of total employment	176,056	243,965	Z= -0.970
Mean percentage change in employment (1995-2005)	-1.52	1.90	Z= -2.673**
Average GDP per capita (2004)	14536	17476	Z= -2.744**
Average change in GDP per capita (1995-2004)	46.59	57.96	Z= -3.852**
Mean percentage employed in SOC classes 1-3	38.21	40.22	Z= -1.263
Mean percentage of population with NVQ level 4 qualification	24.34	26.81	Z= -2.154**

** significant at the 5 per cent level (2-tailed)

Table 6: Economic Activity Rates in the Two Types of Region

Variable	Consumption growth regions	Knowledge growth regions	Mann- Whitney independent samples test
Mean economic activity rate (per cent)	55.88	65.49	Z= -1.504
Mean male economic activity rate (per cent)	58.50	62.00	Z= -0.548
Mean female economic activity rate (per cent)	53.93	68.09	Z= -2.215**
Mean economic inactivity rate (per cent)	64.07	54.57	Z= -1.488
Mean male economic inactivity rate (per cent)	61.50	58.00	Z= -0.548
Mean female economic inactivity rate (per cent)	66.07	51.94	Z= -2.215**
Youth (16-24 year olds) economic activity rate (per cent)	56.06	65.25	Z= -1.439
Mean male youth (16-24 year olds) economic activity rate (per cent)	58.86	61.52	Z= -0.416
Mean female youth (16-24 year olds) economic activity rate (per cent)	54.06	67.92	Z= -2.170**

** significant at the 5 per cent level (2-tailed)